

CHAPTER 1

INTRODUCTION TO THE COURSE

CHAPTER OBJECTIVES

Upon completion of this chapter, you should be able to:

1. Identify the purpose and objectives of this course.
2. Identify the prerequisite knowledge and skills necessary to comprehend the content of the course.

The National Training Program

As a weights and measures official, you are responsible for enforcing the system of weights and measures in the United States. You are probably aware that enforcement is a function of State and local jurisdictions rather than the Federal Government. However, the National Institute of Standards and Technology (NIST) has a mandate to provide technical assistance and advice to promote measurement uniformity and traceability of standards. Historically, training has been part of NIST's approach to providing this technical assistance and advice. In addition, NIST provides technical assistance to the National Conference on Weights and Measures (NCWM) in partial implementation of its statutory responsibility for cooperation with the States in securing uniformity in weights and measures laws and methods of inspection among the State and local jurisdictions.

Technological advances, especially in the area of electronic devices, have increased the need for training weights and measures officials. NIST course materials are available in a variety of technical areas to meet the specific training needs of individuals or groups. These courses are intended to:

- promote inspection and regulatory uniformity, and
- provide weights and measures officials with the knowledge and skills they need to deal with and benefit from changing technologies.

The courses are designed primarily to provide structured and uniform training for new employees in the weights and measures field. However, the experienced official will benefit from refresher training and upgrading of skills. A series of "functional courses" provides detailed instruction on specific functions of weights and measures officials such as inspecting and testing different types of equipment. Another series of courses covers basic information such as background, theory, and policy on weights and measures related subjects. In some cases, the training provided by the basic courses may prepare an official to take the functional courses. In other cases, the basic courses are intended as follow-ups to the functional courses. The contents of the following courses are directly relevant to the one you are now using:

Introduction to NIST Handbook 44
Introduction to Electronic Weighing and Measuring Systems

Course Objectives

Each day millions of Americans purchase one commodity that has become absolutely essential in our mobile society—motor fuel. Several times a month, most of us drive in to the neighborhood service station, or pull up to the pumps at an “oasis” on the interstate, and say, “fill er up,” or “five dollars of regular,” or—perhaps more often these days—we just get out of our cars and do the work ourselves. In many instances we pay by credit card or cash at the “pump” without any contact with station personnel. We may grumble about having to pay so much for a gallon of gas and having to pump it ourselves, and most of us shop around the best prices and look forward gleefully to the occasional “gas war.” But, as dependent as we have become on motor fuels for our livelihood and pleasure, and despite the hundreds of dollars we each pour into our tanks every year, few of us feel any real concern that we may not be getting what we are paying for.

Perhaps because we take it for granted that we are getting what we pay for, few of us realize that we owe our peace of mind, in this regard at least, to two things: the precision instrument that we think of—if we think of it at all—as the “gas pump”, and the efforts of the weights and measures officials who periodically inspect and test these devices to assure that they are operating at the high levels of accuracy and reliability for which they are designed.

As a weights and measures official, you serve both the purchasing public and the members of the commercial community who sell to the public, by assuring equity in the marketplace, discouraging unfair competition, and promoting consumer confidence.

So your job is more important than many people may realize, but it is also challenging work, requiring knowledge, skills, and judgment. You must master the complexities of the exacting technical specifications, tolerances, and procedures that have been established for your jurisdiction. You must be able to use precision test equipment expertly. And, you must perform your tasks judiciously, in such a way as to assure the protection of the public, and at the same time minimize the burden of inspections and tests to the user of weighing and measuring devices, realizing that any costs incurred by users as a result of your activities will ultimately be passed on to their customers.

So it is not enough simply to master procedures, as important as they may be. You must also understand something of how the business and marketplace work. And it is not enough to learn specifications and tolerances. As you will see in the following chapters, you must be able to recognize and distinguish between various types and classes of devices before you can decide which particular specifications and tolerances apply in a given situation. And you must also, to do your job well, understand the entire fuel-dispensing system, of which the measuring device is only a part.

Finally, you must keep up-to-date with a constantly changing and evolving technology. As you are probably aware, the “high-tech” electronic revolution, which in recent years has extended to every sector of our economy and has entered our schools and homes as well, has not passed over the retail motor-fuel dispensers industry. So you must be prepared to deal with frequent changes in already complex and highly sophisticated systems.

You should understand, however, that the purposes and objectives of this course are limited. It is not intended to train you as a mechanical or electronic technician, repairperson, or troubleshooter. Its primary purpose is to help you perform the no less important job of a weights and measures official.

Upon completion of the course, you should have the knowledge and skills to:

- Describe the different types of retail motor-fuel dispensing systems.
- Describe the major components of a retail motor-fuel dispensing device.
- Identify the appropriate equipment for testing a retail motor-fuel dispensing system, and describe the proper use and care of the equipment.
- Describe and use proper safety practices when working at the inspection site.
- Describe the inspection procedures that should be followed in the course of examining a retail motor-fuel dispensing system.
- Describe the steps for the testing of a retail motor-fuel dispensing system.
- Identify the post-test tasks that must be performed as part of an official field examination.
- Understand the Field Training component of this training program and requirements for certification as an inspector for retail motor-fuel devices.

Prerequisites

No previous knowledge of fuel-dispensing systems or retail motor-fuel devices is required. You should, however, be familiar with the general content and format of the latest edition of NIST Handbook 44, “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.” If you are not familiar with Handbook 44, it is recommended that you study “Introduction to NIST Handbook 44”, a self-study course which has been developed specifically for this purpose.

SUMMARY

This training course is part of a series of technical courses provided by the National Institute of Standards and Technology. It is intended to help you learn to perform the important task of examining retail motor-fuel dispensers and consoles in the field.

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